

Drying of rambutan seed for green and sustainable environment



Contents

- ✿ **Background**
- ✿ **Hypothesis**
- ✿ **Methodology**
- ✿ **Key Findings**
- ✿ **Implication**
- ✿ **Originality**
- ✿ **Limitation**

Background

Agricultural development, reduce dependency on import foodstuffs, increases in agricultural waste ; **Study in agricultural waste**

Diversity function of fat extracted of rambutan seed in food, cosmetic and medicinal purposes;

Rambutan seed was chosen as a subject in this study

Need to prolong life span of rambutan seed as it naturally waste of seasonal fruit crops; **need treatment**

Simplest method, less technical required, cost saving and environmental friendly;
drying to extend lifespan

Longer drying time, more energy consumption;
convective drying

Therefore, there is need to improve **drying method** of **rambutan seed clone R4** by **electromagnetic drying** to extend lifespan for diversifying it use in industrial for green and sustainable environment

Hypothesis

Method

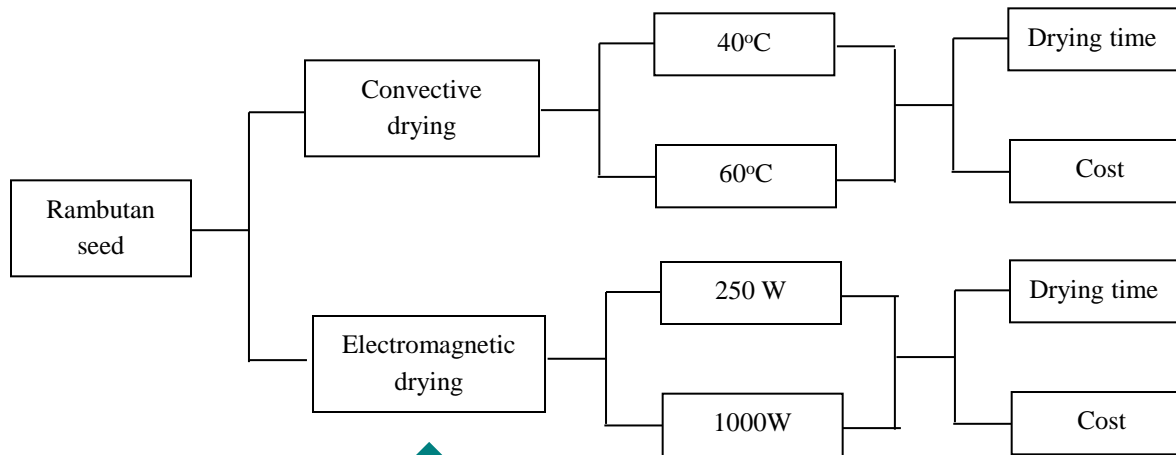
- There is significant effect of ***method applied*** on ***drying time*** and ***cost production***

Effect of operational process variables

- There is significant effect of ***temperature*** and ***microwave power*** on ***drying time*** and ***cost production***

Methodology

Experimental design for drying process involved



Control

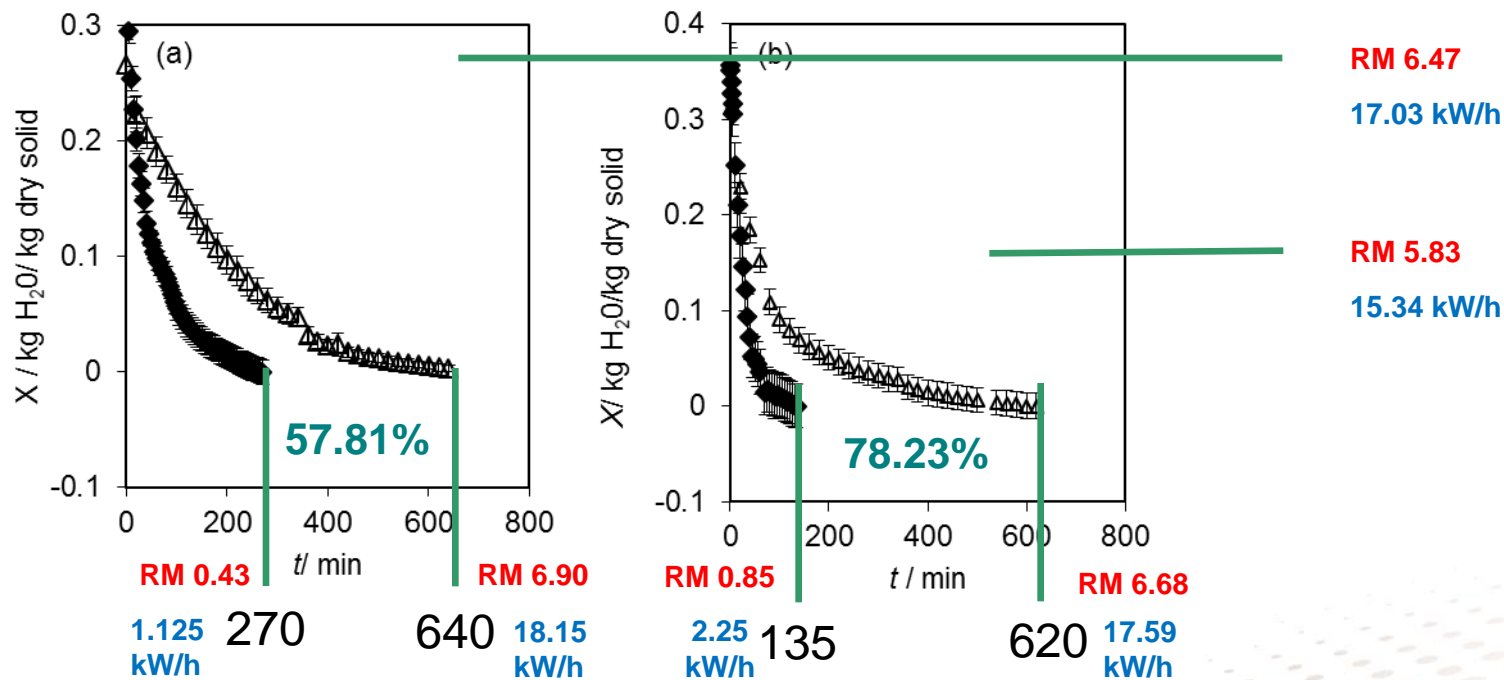
Tested



Intervention

Key Findings

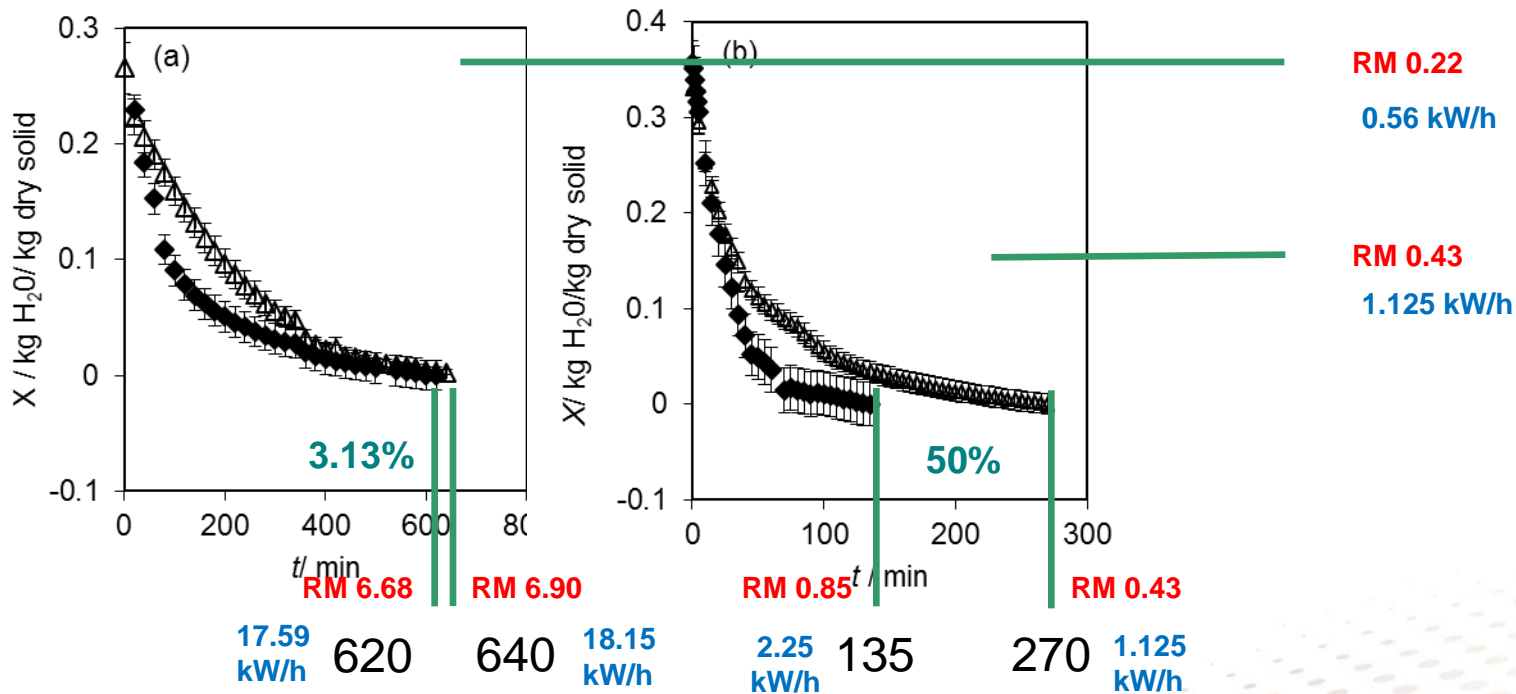
1. Effect of different drying methods on drying time



- (a) Drying curve for rambutan seed at different drying method using an automatic electric oven and microwave drying (▲) 40°C; (■) 250 W
- (b) Drying curve for rambutan seed at different drying method using an automatic electric oven and microwave drying (▲) 60°C; (■) 1000 W

Key Findings

2. Effect of operational process variables on drying time



- (a) Drying curve for rambutan seed at 40°C and 60°C using an automatic electric oven (Δ) 40°C; (\blacksquare) 60°C
- (b) Drying curve for rambutan seed at 250 and 1000 watt using commercial microwave oven (Δ) 250 W; (\blacksquare) 1000 W

Implication

Process

provide an appropriate drying method

- enhance understanding on convective and electromagnetic drying of rambutan seed clone R4

Sustainability

Economy

- sustain resources in food system, stabilize food prices, enhance economic growth

Environment

- less energy consumptions, clean technology, green and remain eco nature

Social

- foster nutritional in food and food security, awareness all level of society, reduce world hunger

Originality



Methodology

- Sample used
- Method applied
- Range studied

Findings

- Synthesize interaction between variables
- Proffer effective drying method in term of time, energy and cost

Limitation



Sample

- part use (seed)
- clone R4



Process

- method applied
- range studied



Outcome

- drying time
- energy consumption
- cost

THANK YOU

